

REMARKS

Claims 5 and 8 are pending in the present application.

Applicants' Response to the Rejection under 35 U.S.C. § 102

Claims 5 and 8 were rejected under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over **Kojima (U.S. Patent No. 6,253,866)**. As in the prior Office Action, the present Office Action argues that the currently presented claims read on **Kojima**, except that **Kojima** does not specifically disclose a clutch. The Office Action maintains the argument that the power distribution mechanism of **Kojima** inherently contains a clutch, and therefore claims 5 and 8 are anticipated by **Kojima** under 35 U.S.C. § 102(e). Alternatively, the Office Action argues that it would have been obvious to include a clutch in the claimed catalyst warming control apparatus, and therefore claims 5 and 8 are rejected under 35 U.S.C. § 103(a).

Kojima describes the functioning of the power distributing mechanism 4 under low-load conditions, without the use of a clutch. See column 7, lines 41-59. In fact, the power distribution mechanism 4 of **Kojima** eliminates the need for a clutch. **Kojima** contains no reference to a clutch, and no suggestion that a clutch should be included.

Applicants respectfully submit that the power distribution mechanism of **Kojima** does not inherently contain a clutch. Applicants have found exemplary, non-patent evidence of a similar power distribution mechanism which is similar, if not identical, to **Kojima** and which does not contain a clutch. An example of such a power distribution mechanism lacking a clutch is that of the Electronically Controlled Continuously Variable Transmission (ECTV) used in the

Toyota Prius hybrid vehicle. Please see

<http://www.toyota.com/vehicles/2005/prius/glossary/cvt.html> which states:

Continuously Variable Transmission (CVT)

CVT is a type of transmission with an infinite number of gear ratios that are always changing depending upon the relative speed of the vehicle and the engine rpm. There are several types of CVTs. Hybrid Synergy Drive® uses an electronically controlled CVT (ECVT) which integrates a planetary gear set into the drivetrain.

The ECVT allows the engine and motors to operate at their most efficient points regardless of the vehicle's speed. This provides higher fuel economy and a very smooth acceleration experience, as there is no "shift shock" associated with conventional transmissions. Further, **the transmission requires no hydraulics or clutches** (reducing maintenance requirements), and is such a vital component to Hybrid Synergy Drive's amazing performance that it is often referred to by its new name: Power Split Device. (Emphasis added)

Since there exists a power distribution device lacking a clutch in a similar environment to **Kojima**, Applicants respectfully submit that a clutch for performing the connection or disconnection of the transmission of the power between the generator connected to the engine and to the motor is not inherent in a power distribution device. For at least this reason, Applicants respectfully traverse the rejection based on 35 U.S.C. § 102(e).

Applicants' Response to the Rejection under 35 U.S.C. § 103

Applicants submit that if **Kojima** contained a clutch, functionality of the power distribution mechanism would be removed and therefore the addition of a clutch would not have been obvious. In **Kojima**, the power distribution mechanism 4 contains a sun gear, planetary gear, a rotary shaft of a planetary carrier, and a ring gear. The sun gear connects to the generator 3, the rotary shaft of the planetary carrier connects to the engine output shaft 1a, and the ring gear

connects to the electrically driven motor 2 via the rotary shaft 2a. See column 5, line 62 to column 6, line 6. Thus, none of the gears of the power distribution device are fixed. As such, if a clutch were present between the engine, generator, and planetary gear, the power distribution device of **Kojima** would not work. If such a clutch were disengaged, the planetary carrier will freewheel (or simply spin). Accordingly, the power distribution device would not function properly. Thus Applicants argue that **Kojima** as well as previously mentioned non-patent evidence teach away from the use of clutch. Therefore, Applicants respectfully submit that it would not have been obvious to one having ordinary skill in the art to add a clutch to the system of **Kojima**.

The operation of the catalyst warming control apparatus of the present invention fundamentally differs from the apparatus of **Kojima**. The use of a clutch in the present invention and the lack of a clutch in **Kojima** causes these two apparatuses to function in different ways.

In **Kojima**, when the charge is low, the engine is used for both for driving the vehicle and for generating electric power. See column 7, lines 42-59. When the charge is high, the engine is turned off. See column 7, lines 60-64. This function does not appear to be tied to the temperature of the catalyst. The temperature is separately analyzed without regard to the charge (except for an over-charge prevention scheme). **Kojima** discloses an engine warm-up operation in which the engine is not disconnected from the drive wheels. That is, in the engine warm-up operation, the engine is always used for drive, unlike in the claimed invention. See column 9, lines 8-44.

In the present invention, when the charge is low and the temperature is low, the engine is used for both driving the vehicle and for generating electric power. At this time, the clutch is

engaged, and the internal combustion engine is used to drive the vehicle. See page 12, lines 4-13 of the specification. On the other hand, when the temperature is low and the charge is high, the electric motor is used for driving the vehicle. However, unlike in **Kojima**, the engine remains on but disconnected from the drive wheels, and is used for generating electric power to charge the batteries and run the motor. This loads the engine, thus warming the exhaust. The engine is not used for driving the vehicle, because the clutch is disengaged. See page 12, line 19 to page 13, line 6 of the specification.

Thus, **Kojima** does not recite an apparatus containing:

a clutch for performing the connection or disconnection of the transmission of the power between the generator connected to the engine, and the motor....

...wherein the control circuit allows the generator to generate electric power, disengages the clutch, and drives the vehicle by the generated electric power and stores the electric power, when the detected result from the temperature detector is equal to or below the first reference value according to the output from the first comparison circuit, and when the detected result from the remaining charge detector is above the second reference value relating to the remaining charge according to the output from the second comparison circuit.

In summary, Applicants respectfully argue that **Kojima** does not disclose, either inherently or expressly, a power distribution device containing a clutch. Applicants submit that if a clutch were to be added to **Kojima**, the functionality of the power distribution device would be lost. Therefore, Applicants argue that it would not have been obvious to include a clutch in **Kojima**. The present invention and that of **Kojima** operate differently, in that the present invention allows the engine to be used for warming the catalyst and generating electric energy under high charge, low temperature conditions, without being used to drive the vehicle. This is

made possible by the disengagement of the recited clutch. Thus, it is clear that Kojima does not employ a similar system for warming the catalyst as in claims 5 and 8.

Applicants wish to thank the Examiner for conducting a personal interview with the undersigned and Mr. Chirnomas on February 10, 2005. The Kojima reference was discussed with regard to the rejection of claims 5 and 8. Applicants' representative pointed out that Kojima did not disclose a clutch and that it was not inherent. Furthermore, applicants' representatives pointed out that Kojima does not disclose, nor suggest, the system of claims 5 and 8 which disengages the clutch when the temperature is low and the charge is high. While no agreement was reached the examiner indicated that he would consider the arguments when a response is received.

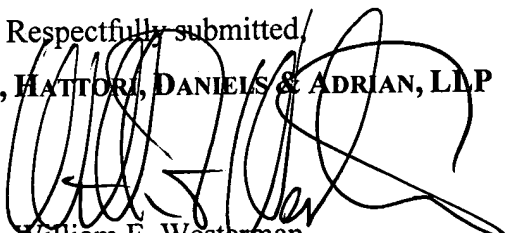
In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

Response After Final
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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
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